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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/537,948	03/29/2000	James David Johnston	1999-0104	7042

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EXAMINER

SELLERS, DANIEL R

ART UNIT

PAPER NUMBER

2644

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/537,948

Applicant(s)

JOHNSTON ET AL.

Examiner

Daniel R. Sellers

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 14, 16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 is/are allowed.
- 6) ☒ Claim(s) 14, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of admitted prior art, Grill, Laurent, and well-known prior art.
3. Regarding claim 14, Grill teaches a frequency-domain coding apparatus and method, wherein he teaches a method of calculating a filter for a plurality of bands (Col. 4, lines 20-35). Grill teaches the use of filter banks for use in a high sampling frequency coder. Grill does not teach the steps of determining a distance between coefficients, nor do they teach the clustering of filters. Laurent teaches a method of combining predictor filters, and reducing the number of filters employed by merging (Col. 5, lines 5-25). Laurent teaches the determination of distance between filters, and the merging of filters with the shortest distance, wherein the aim is to minimize the total error created by using a merged filter. Laurent teaches separate filters per frame for use in a voice coding system, however one skilled in the art can appreciate that this method can be used in any system that aims to reduce the number of filters used in the system. It would have been obvious for one of ordinary skill in the art to combine the teachings of Grill and Laurent for the purpose of obtaining the best results with a limited amount of filters. The applicant discloses that the AAC standard limits the number of TNS filters per block. Neither Grill, nor Laurent teach clustering and centroids.

Well-known prior art, such as quadrature amplitude modulation (QAM), teaches the use of clustering in detecting signals with similar phase and amplitude. A centroid, or a center of mass, defines the most-likely, or average, phase and amplitude of a certain cluster. The centroid is another method of measuring likelihood. It would have been obvious for one of ordinary skill in the art to combine the teachings of Grill, Laurent, and well-known art for the purpose of obtaining the best results with a minimum number of filters.

4. Regarding claim 17, the further limitation of claim 14, see the preceding argument with respect to claim 14. The combination teaches the use of energies (Laurent, Col. 3, lines 63-67).

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grill , Laurent, and well-known art as applied to claim 1 above, and further in view of Damoulakis et al. (Damoulakis), U.S. Patent No. 4,720,802.

6. Regarding claim 16, the further limitation of claim 14, see Damoulakis ... wherein said coefficients are PARCOR coefficients. (Col. 4, line 62 - Col. 5, line 4).

Damoulakis teaches a noise compensator in a speech coder, which employs the use of partial correlation (PARCOR) coefficients. Damoulakis further teaches that filter banks could be employed in a frequency analysis situation, however they do not teach the steps of determining distance and merging as claimed in the parent claim. The combination of Grill and Laurent teach the features of claim 1. It would have been obvious for one of ordinary skill in the art to combine the teachings of Damoulakis with

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the combination of Grill, Laurent, and well-known prior art for the purpose of more efficient coding.

Allowable Subject Matter

7. Claims 1-9 are allowed.

8. Regarding the independent claims 1 and 5, the prior art does not suggest calculating final filters as claimed. More specifically, neither Grill or Laurent (US Pat. 5,552,009) , teach a system that calculates the coefficients for digital filters, wherein the final number of filters deployed in the working system is less than the initial number of filters. Neither reference or the prior art teaches a system that merges the adjacent filters' coefficients to reduce the number of filters, wherein the final filter is recalculated for a respective stronger signal in a mixed audio signal environment.

9. Claims 2-4 and 6-9 are allowed because they depend on the allowed independent claims 1 and 5.

Response to Arguments

10. Applicant's arguments, see pages 5-8, filed November 7, 2005, with respect to claims 1-9 have been fully considered and are persuasive. The rejections of claims 1-9 have been withdrawn.

11. Applicant's arguments with respect to claims 14, 16, and 17 have been fully considered but they are not persuasive. See the preceding rejections under 35 USC 103.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Malvar, U.S. Patent No. 6,115,689.
13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel R. Sellers whose telephone number is 571-272-7528. The examiner can normally be reached on Monday to Friday, 9am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DRS



HUYEN LE
PRIMARY EXAMINER